THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

Engineering

Undergraduate Prospectus 2019

ACHIEVE THE AMAZING

Welcome to the Faculty of Engineering

Why study with us? 3

What can you study? 4

Choose your specialisation 5

How do you get in? 14

It's time to apply 15

Welcome to the Faculty of Engineering

With innovative and creative abilities, engineers are vital in our increasingly complex technological world. At New Zealand's leading engineering faculty*, you'll be surrounded by like-minded people – all of whom are excited to push boundaries, change the world, and learn from each other.

Our undergraduate degree offers nine distinct specialisations – each one provokes you to master the advanced technologies we have on site hands-on, giving you the chance to glimpse into the designs of our future environments.

With brand new facilities to come, you will be amongst the first to experience our new technologies, spacious student areas, and multi-disciplinary learning spaces. Along with our roster of exceptional academic staff and student support, we're providing you with the best possible foundations to ensure success.

A degree in Engineering offers unparalleled opportunities to contribute to positive change, both locally and internationally. Our graduates navigate global socio-economic challenges and technical complexities with creativity, empathy, and passion – we hope to see you do the same.

On behalf of our faculty, I invite you to join us to make a positive difference in our world.

Nic Smith

PROFESSOR NIC SMITH
Dean of Engineering
The University of Auckland

QS World University Rankings by Subject 2017

ACHIEVE THE AMAZING

Why study with us?

A degree from the University of Auckland's Faculty of Engineering will give you the skills to shape our world. Engineers contribute to the health of our nations, the growth of our economy and the future of our cities.

Leading the way

You'll be studying at New Zealand's leading engineering faculty*. We also host an extensive engineering library collection, offering you access to a huge array of resources.

International recognition

All University of Auckland BE(Hons) specialisations are accredited by Engineering New Zealand, a signatory to the Washington Accord. Engineering New Zealand accreditation makes your degree a recognised qualification in many overseas countries.

Innovation and entrepreneurship

We are ranked as the most innovative university in New Zealand and Australia**. We are committed to building a culture of innovation and entrepreneurship, with high levels of connectivity between researchers and businesses.

Many students participate in Velocity, New Zealand's leading entrepreneurial programme based at the University's Business School. This initiative is open to all University of Auckland students, and has supported over 110 ventures, raised $220 million of capital and created over 400 jobs since its launch in 2003.

Competitive admission

We have a guaranteed entry scheme for high-performing secondary school students so you'll be studying alongside the best. Limited places are also available under our Targeted Admission Schemes for eligible students.

Unique specialisations

We are the only university in New Zealand to offer specialisations in Engineering Science, Biomedical Engineering, and the combination of Chemical and Materials Engineering.

World-class facilities

You'll have access to leading research, equipment and study facilities including the renowned Auckland Bioengineering Institute, a specialised NanoIndenter machine, the Twisted Flow Wind Tunnel and more.

Combine your degrees

You can combine specialist fields across two faculties by taking a conjoint degree, such as Engineering with Commerce or Law.

Women in Engineering

Women are highly represented in our undergraduate student body, making up over 27% of students – one of the highest participation rates of females in tertiary-level engineering across Australia and New Zealand.

Practical experience

You'll gain experience in the workplace, alongside industry professionals, as you carry out the 800 hours' practical work required over the course of your degree.

First-class research

We have the largest number of top-rated researchers and the highest level of research income of any university in New Zealand. You'll have access to our leading research institutes, including the Centre for Advanced Composite Materials and the Centre for Healthcare Robotics.

Strong career and employment outcomes

The University of Auckland has a QS 5 Star PLUS rating for excellence in eight categories, including employability. We are the leading university in New Zealand for graduate employability.***

**QS World University Rankings by Subject 2017*
*** Reuters Top 75: Asia-Pacific's Most Innovative Universities 2017*
**** QS Stars University Ratings 2017, QS Graduate Employability Rankings 2017*

Student life

University can be both a challenging and exciting experience. The Faculty of Engineering is dedicated to providing a relaxed and supportive atmosphere for our students, so academic and pastoral support is always available. Events are held throughout the year, and there are many student groups, clubs and associations to get involved with.

Part I Assistance Centre

Part I students can receive academic assistance from high-achieving Part II and III students every teaching week during Semesters One and Two. These mentors are trained and maintain close contact with our Part I course coordinators throughout the semester. This service is also provided at O'Rorke Hall for Engineering students who are living there.

Student Engagement team

The Student Engagement team supports you academically, personally and professionally. They are there from Orientation through to employment, and provide academic help, pastoral services and links to key support services. These include health and counselling, Career Development and Employability Services and academic help. For more information, email **foe-engagement@auckland.ac.nz**

Tuākana Tutorial Programme

The Faculty of Engineering employs high-achieving Part II and Part III students to provide targeted tutorials in all core Part I Engineering courses. Academic support programmes are also provided for Māori and Pacific Engineering students.

Clubs and associations

Our faculty has a vibrant student culture. Beyond studying, we ensure that you have the safe spaces and opportunities to make new friends and enjoy student life. You may choose to join specific groups, such as the Women in Engineering Network (WEN), the South Pacific Indigenous Engineering Students Network (SPIES) and the Rainbow Engineering Network. Alternatively, there are plenty of clubs for different areas of interest, including the Engineering Revue, the University of Auckland Formula SAE Team, Engineers Without Borders and more.

International students

We welcome applications from international students. If you seek admission to Part I of the BE(Hons) and have New Zealand secondary school qualifications, you will require the same guaranteed entry score as domestic students. If you apply for admission based on an overseas secondary school qualification you must meet admission, programme and undergraduate English language requirements. See **www.auckland.ac.nz/prioroverseasschoolstudy**

Scholarships

More than 40 Engineering undergraduate scholarships ranging from $1,000 to $7,500 have been graciously established by individuals, societies, businesses and industry bodies. For a full list of under-graduate scholarships and awards, visit **www.engineering.auckland.ac.nz/scholarships**

What can you study?

Bachelor of Engineering (Honours)

Full-time: 4 years

Points per degree: 480

Taught at: City Campus

Application closing date: 8 December 2018

Classes start: 4 March 2019 and 22 July 2019

The BE(Hons) degree at the University of Auckland is a four-year programme that can lead to Chartered Professional Engineer status after graduation and suitable work experience. It consists of 480 points, usually divided into four 120-point parts (each equivalent to one year of study).

Part I is a common first year. You gain exposure to each of our nine specialisations and study a broad base of engineering and professional fundamentals.

At the end of Part I, you will be invited to select the discipline in which you wish to specialise for the remainder of your degree. We offer nine different specialisations, each with a limited number of places. Admission into your preferred specialisation is based on your academic results in Part I.

Parts II, III and IV are customised over the following three years according to your area of specialisation. All students study a common core of mathematical modelling, technical communication and professional development, in addition to specialist subjects relevant to your chosen field. You will also have opportunities to choose elective courses, allowing you to further specialise in topics that interest you most.

Throughout your degree, your courses will involve a mixture of lectures, tutorials, traditional assignments and exams, as well as laboratories, field trips, practical work, research projects and presentations.

Conjoint programmes

Full-time: 5 years (6 years with LLB)

Points for BE(Hons): 405 points

Conjoint combinations: Arts, Commerce, Global Studies, Law, Law (Honours), Music, Music Property, Science

Points for other degree: 270 points (255 points from Arts, Commerce, Global Studies, Music, Property and Science), 405 points for LLB, 465 points for LLB(Hons)

Conjoint programmes enable you to complete a BE(Hons) and another degree more quickly than if you were to complete them separately. They can be an excellent choice if you know that the other degree component will be beneficial in your proposed career, or if you are a capable student with skills in various areas.

The workload for a conjoint programme is higher than that of a single degree (usually 135 points per year, compared with 120 points per year for a single degree). The BE(Hons) programme alone is considered to have a high workload, so conjoint students must be prepared for an even greater challenge.

Conjoint programmes have higher entry requirements and may be subject to faculty approval. They can be structured in several ways, and planning your timetable can be complex, so please contact your faculty Student Centres if you need extra help.

Before you apply, see **www.auckland.ac.nz/conjoints**.

Sample BE(Hons) degree structure

Part I	**CHEMMAT 121** Materials Science	**ELECTENG 101** Electrical and Digital Systems	**ENGGEN 115** Principles of Engineering Design	**ENGGEN 121** Engineering Mechanics	**ENGGEN 131** Introduction to Engineering Computation and Software Development	**ENGGEN 140** Engineering Biology and Chemistry	**ENGSCI 111** Mathematical Modelling 1	General Education	**ENGGEN 199** English Language Competency
Part II	**ENGGEN 204** Managing Design and Communication	**ENGSCI 211** Mathematical Modelling 2	Specialisation course	Specialisation course	Specialisation course	Specialisation course	Specialisation course	Specialisation course	**ENGGEN 299** Workshop Practice
Part III	**ENGGEN 303** Managing Projects and Innovation	**ENGSCI 311** Mathematical Modelling 3	Specialisation course	Specialisation course	Specialisation course	Specialisation course	Specialisation course	Elective	**ENGGEN 499** Practical Work
Part IV	**ENGGEN 403** Managing a Business	Specialisation course	Research Project		Elective	Elective	Elective	Elective	

Common core courses *Specialisation courses* *Elective courses* *General Education courses* *Part IV research project* *Compulsory degree components*

All successful applicants will gain entry into the BE(Hons) programme. The BE(Hons) degree is awarded to those students who achieve a sufficiently high Grade Point Average (GPA) in Parts II, III and IV. Students who successfully complete the programme, but do not achieve a sufficiently high GPA to be awarded the Honours degree, will be awarded the BE degree.

Practical work

There are two compulsory practical work requirements of the BE(Hons) degree. In Part II, you will need to complete a 40-hour workshop practice course. You are also required to gain at least 800 hours of practical work experience throughout your degree. This will involve exposure to general trade and sub-professional skills relevant to your Engineering specialisation, ensuring you're ready for the workforce by the time you graduate.

General Education

General Education courses are a distinctive feature of the University of Auckland's bachelors degrees. They are designed to broaden your education and give you a chance to try a course outside your degree. As a BE(Hons) student, you must pass one General Education course (15 points) in Part I. Special arrangements may apply if you transfer from another tertiary institution with credit. For more information, visit **www.auckland.ac.nz/generaleducation**

Choose your specialisation

Biomedical Engineering

Biomedical engineers combine engineering, medicine, and biology to resolve challenges in the healthcare industry. They respond to challenging problems, and design medical solutions for more effective treatment and quicker recovery. It is a field of rapid diversification, and as the role of technology in healthcare becomes more prominent, biomedical engineers find themselves at the forefront of real-world, life-changing outcomes.

Career opportunities

Biomedical engineers often gain employment in biomedical companies, research facilities, hospitals and government regulatory agencies. They design medical devices, prostheses or implants, develop drugs or drug delivery systems, improve sports and injury assessment, and work in medical IT. As some of the most versatile engineers, biomedical engineers can also be found in fields like software development, electronics, consulting, financial modelling, and the food/meat/wool industries.

Lucy Ellingham

Student: Bachelor of Engineering (Honours) in Biomedical Engineering

"At secondary school, I was passionate about physics, chemistry, biology and mathematics, and wanted to pursue a career that would bring these interests together. I was also interested in the healthcare area, and thought that Biomedical Engineering would be an engaging field that lets me chase my interests and tangibly improve people's lives.

"There was a semester-long project in my second year where my group had to design and build a breathalyser. This involved 3D printing the case, ordering components, soldering a printed circuit board, writing code to interpret the output data, and giving an oral presentation to our peers about our device. I think this kind of integrated design approach is what sets the Faculty of Engineering apart.

"My favourite thing about studying at the Faculty of Engineering is the practical work experience, which is immeasurably useful. It gives graduates a foothold within a competitive industry, and helps you to form connections with companies and people who will help you out later in your career.

"We have some incredible, dedicated lecturers, world-class research facilities, and a culture of excellence that underpins everything we do. It's been great to work with people who are ambitious and driven, and really want to help us succeed."

Natalie Yeh

Student: Bachelor of Engineering (Honours) in Chemical and Materials Engineering

"Engineering is versatile, creative and forward-thinking. It's also a fun and sociable degree. I want to work with people to solve modern day problems, and to try a lot of different things and work out where I fit in – Engineering is perfect for this.

"I love the people in my degree. It's extremely comforting to find so many people that you can get along with. There are also so many extraordinary people in the programme – it's satisfying to see that your fellow peers have the potential to make some big changes!

"I've always enjoyed our systems paper. I'm very much a people person and would take any opportunity to develop my interpersonal skills. This is one of the few papers that specifically focus on this. I've also been a part of the Auckland University Engineering Society since I started my degree and it definitely adds to the fun. Joining clubs such as Engineers without Borders, Engineering Revue and the Sustainable Collective all helped me meet new, like-minded people.

"Doing Engineering taught me that it's really satisfying to do good work on your own, but even more so when it's in collaboration with others. It's great knowing that we're going to contribute largely to the direction of the future."

Chemical and Materials Engineering

Do you wonder how products like petrol, plastic bottles, and synthetic polyester are produced from oil? Or are you more interested in developing new, sustainable replacements for these everyday items? These topics fall under Chemical and Materials Engineering, a discipline that involves understanding how to chemically or physically alter a substrate in order to produce something useful. As "big picture" professionals, these engineers are often responsible for the overall design, operation and quality of giant-scale processes.

Career opportunities

Major industries employing chemical and materials engineers include dairy and food, pharmaceuticals, paper and pulp, petrochemicals, energy processing and production, construction and cement, timber, water treatment, resource development and management, electronics, and mineral processing industries such as aluminium and steel production. As sustainable practices become increasingly critical, chemical and materials engineers will also be required to re-evaluate and re-design many of the fundamental products and processes that these industries have been built upon.

Civil Engineering

Civil engineers make modern life possible. They work on the planning, design, construction and maintenance of projects such as skyscrapers, motorways, bridges, tunnels and dams. They calculate the maximum weight that a bridge will be able to hold, or work out how to earthquake-proof buildings. Environmental engineering, which you can undertake during your Civil Engineering specialisation, is concerned with designing practical solutions that help mitigate further harm to our planet. You can see how the disciplines of Civil and Environmental Engineering will become further connected, and gain relevance as time passes.

Career opportunities

The demand for civil and environmental engineers will soon exceed supply as cities continue to grow, ageing infrastructure needs replacing and the need to rectify human harm to the environment becomes critical. You will find opportunities in state-owned enterprises, regional and district councils, and as an engineering contractor or consultant in the private sector. A number of our graduates have progressed into the top echelons of businesses around the world.

Joseph Gibson

Student: Bachelor of Engineering (Honours) in Civil Engineering

"I was quite an all-rounder at school. I did well in both the science/maths and the arts subjects. Normally, people seem to pick engineering because they're more into science, but I decided to do it based on my interest in problem-solving and understanding how things work.

"After trying out all the specialisations in my first year, I decided to do Civil Engineering. It appealed to me because it was broad and incorporated aspects of geography, which I enjoyed at school.

"I really enjoy the variety of content that that Civil Engineering covers. We investigate many different types of infrastructure in our second and third years, so you really get exposed to lots of different ideas and concepts.

"My favourite project has definitely been Systems Week. Instead of two days of lectures, all Engineering students were put in large groups of 15-20, given a brief, and had to work in our multi-specialisation teams to solve an issue and write a report on it. It was really cool to work on a large project while getting to know so many different people and being asked to work together. We all got to apply all the different concepts we had learnt. Seeing the finished project was very satisfying."

Computer Systems Engineering

Computer Systems Engineering now pervades almost every aspect of our world. It constitutes the core of controllers and components of wireless communication systems, home automation systems, appliances, automobiles, factory processes, mechatronics, instrumentation, embedded systems and nano-systems. Computer Systems Engineering is a crucial discipline that pushes us to consider practical engineering problems with computer-based solutions, often by embedding a computer system into a complex operation that can sense, problem-solve and act in the real world.

Career opportunities

As innovative design and product development continues at pace, so too does the demand for qualified engineers. As a graduate, you will find opportunities in multinational computer companies, consultancy firms, the telecommunications industry, and in the research and development teams of companies in a multitude of sectors. You might extend your Part IV research project, develop a new technology and form your own start-up company.

Nilesh Magan

Student: Bachelor of Engineering (Honours) in Computer Systems Engineering

"Computer Systems Engineering takes my enjoyment of problem-solving, and applies it into the real world by using circuity and coding as our tools.

"I like the structure of my degree. In the first half of your second year, the lecturers introduce you to a lot of theory that you'll apply in the latter half of that year. In your third year, you tend to do a lot more projects which are quite enjoyable – I got to see more of my own design work develop before my eyes.

"Some of the best parts of my degree have been the project work. In my second year, we had a course where we had to make a wireless energy monitor. This was one of the first big projects in Engineering that we did – it was very exciting. There was also a rather full-on course in my third year where we had to design a game using Java, and create a secure messaging system using Python. These project tasks really show you what it's like to pursue the practical side of Engineering.

"I received a Datacom Imagine Cup Scholarship, which gave me the opportunity to be mentored by experienced software developers. It led to a paid internship at the company."

Electrical and Electronic Engineering

Modern society is highly dependent on reliable power, communications and electronic systems. Electrical and electronic engineers design the equipment and systems that provide these essential services. The discipline encompasses a range of exciting and diverse fields, from heavy electrical power generation, to sophisticated medical electronics, computer modelling, electromagnetics, information technology and the global telecommunications network. We will have electrical and electronic engineers to thank when new forms of green electricity are developed and electric vehicles replace our fossil-fuel-powered fleet.

Career opportunities

This engineering discipline changes so rapidly that it may be difficult to envision the types of technology you will be working on by the time you graduate – they may not even be invented yet! Today, our graduates are employed in roles relating to communications, wireless computing technologies, electronics, instrumentation, power electronics and motor-control. Opportunities also exist in processing industries such as timber, pulp and paper, steel, aluminium, meat and dairy.

Alani Nicklin

Student: Bachelor of Engineering (Honours) in Electrical and Electronic Engineering

"At high school, I never knew what I wanted to do. It wasn't until a careers expo where I talked to someone from the Faculty of Engineering that I realised that all my subjects and interests aligned with engineering!

"My natural interest in technology led me to choose to specialise in Electrical and Electronic Engineering. I wanted to do a degree that would simultaneously challenge me and provide a good career path. So far, I've experienced interesting content and the lecturers are world leaders in their field, so you know you're really learning from the best.

"I really enjoyed my final year project, which was a Secure and Scalable Peer-to-Peer energy transfer system. We created a system to let users buy and sell energy generated from their solar panels to neighbours. It's a new area that the real-world market is heading towards, so we got to implement some emerging new technology.

"The Faculty of Engineering has some of the best facilities, especially at the Newmarket Campus. There are also some great student-run events, inter-faculty sports competitions, and final year events, so there's always opportunities to see or try something new. SPIES (South Pacific Indigenous Engineering Society) has been a big part of my experience in Engineering. It has helped me a lot, and I've gained some good friends from it."

Vida Fox

Student: Bachelor of Engineering (Honours) in Engineering Science

"Engineering Science is an excellent choice for me because I was more interested in maths than in 'traditional' engineering itself.

"I've really enjoyed how challenging this degree has been so far! I liked learning to code. It's something that I've never been exposed to prior to my time here, so it was satisfying to learn the logic and become competent at a new skill. While I never want to code all day as a job, it's a useful tool to help solve a variety of problems.

"I want to work in high level analytics or management consulting. Both of these areas require good problem-solving skills and an analytical mindset, which my specialisation prepares me for.

"I grew up in Napier, which was quite different to a large city like Auckland. I've enjoyed the variety of activities to get involved in here; I have seen plays and Shakespeare, the NZSO, played indoor netball, joined the rock climbing club, and more! There is always something on to keep you entertained.

"What I like most about my programme is the people. The students across all levels are an amazing bunch, and the lecturers are relatable and approachable. We all get together throughout each semester for social events like BBQs and sports, and it's amazing to be surrounded by so many intelligent people!"

Engineering Science

Engineering scientists are problem solvers committed to the science of "better". They use their intellect and advanced mathematical skills to design ways to optimise and improve systems. How can a forest be managed to make a profit while still remaining environmentally friendly? How can a sail be designed to work in low wind conditions? What prices should be charged for airline tickets to maximise the revenue from a given flight? These are all questions an engineering scientist would relish.

Career opportunities

The diverse range of options available throughout your degree will directly contribute to your professional versatility. You might end up developing software, modelling production processes for a large manufacturer, or perhaps undertake a management position with a bank. Our graduates can be found in leading New Zealand companies like Fonterra, Air New Zealand, and Meridian Energy, in government organisations including NIWA and Transpower, and consultancy firms such as Beca and Maunsell.

Isabelle Lees

Student: Bachelor of Engineering (Honours) in Mechanical Engineering

"I'd always had an interest in physics and calculus, and wanted to take on the challenge that engineering presented.

"I love that my degree provides a wide range of skills that we can easily apply to other projects. Mechanical Engineering projects tend to have open-ended solutions, so we get to be creative with our design process. We gain critical thinking skills that will be useful in situations we may encounter as engineers.

"Engineering has a really supportive environment. The faculty isn't that large, so you really get to know your lecturers and classmates. Last semester we had a two-person project that was worth about half our grade. This meant we spent a lot of time working together. Towards the end of the project almost our entire class was in the computer labs at the same time, which resulted in a very close-knit atmosphere.

"That also became my favourite project because it introduced us to software we would actually be using in the field. It was also the first time that we manufactured something we designed ourselves. It was awesome to make something on a computer, then actually having the physical model in my hands."

Mechanical Engineering

Mechanical engineers use science and technology to design and produce mechanical devices, machinery and systems, such as robots, wind turbines and cars. Their work spans a range of scales, from nanotechnologies to the large-scale industrial machinery and processes seen, for example, in paper mills or car assembly plants. Mechanical engineers also understand how to efficiently use energy in processes, so they might be involved in designing a heating system for a hospital or a refrigeration plant for a food export company.

Career opportunities

As a graduate, you might pursue opportunities in the manufacturing or transport industries, or in major primary process plants that produce things like wood pulp, dairy products, meat, steel, petroleum and electricity. Many of our graduates enjoy the variety involved in consultative engineering, where they are commissioned by companies to plan, design and implement a range of projects often confined by interesting and industry-specific parameters.

Rebecca Chan

Student: Bachelor of Engineering (Honours) in Mechatronics Engineering

"Where creativity fuses with practicality, good engineering is just downright beautiful. I wanted the opportunity to study something that was going to challenge me, allow me to apply myself in various areas, and ultimately, give me the skills to contribute to society. Engineering is just that.

"I was also told if I wanted to be like Iron Man, then Mechatronics was the specialisation to be in. Needless to say, here I am!

"Part of the reason I love Mechatronics is because it combines several disciplines, so you get the opportunity to create integrated systems. I thoroughly enjoy the programming projects we get assigned because they require a different way of thinking in terms of logic implementation. In one of our assignments we got to develop a Connect Four game with a Candy Crush eliminating effect, and it was really satisfying after the hours of de-bugging and testing to have a working game.

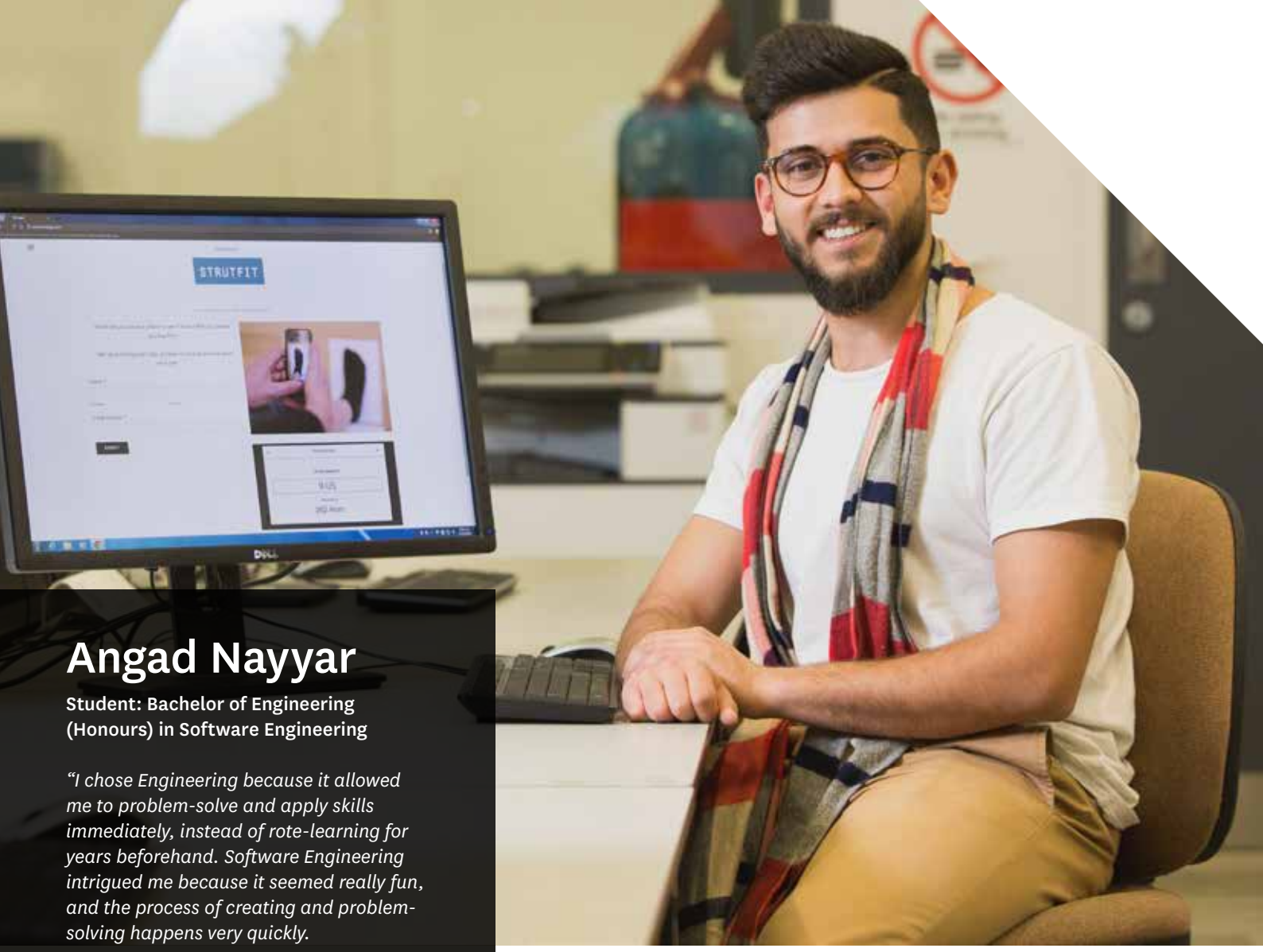
"I've loved the chance to meet and work with so many new people. You get to see how you work, how others work, how others see things and how they approach problem-solving. I've enjoyed group projects because I get the chance to challenge and be challenged, and I believe it's a great learning opportunity."

Mechatronics Engineering

Mechatronics Engineering integrates specialist knowledge in mechanics, electronics and computer systems to design and develop automated systems, such as chassis-stabilising systems, anti-lock brakes, engine control units, disk drives, cameras, service and surgical robots and medical devices. All of these systems are largely mechanical in nature, but could not function without their essential electronic and computer control system components. As "jacks of all trades", mechatronics engineers are often generalists rather than specialists, with a versatility that is highly valued in the workforce.

Career opportunities

This specialisation is fully in line with the modern world's desire for a high-tech, knowledge-based economy. As society moves toward "smart" homes, cities and grids, mechatronics engineers will be in high demand. Our graduates can be found in a wide range of jobs that involve the design and improvement of high-tech products, such as home appliances, medical devices, machine tools, and processes related to precision agriculture and remote sensing.



Angad Nayyar

Student: Bachelor of Engineering (Honours) in Software Engineering

"I chose Engineering because it allowed me to problem-solve and apply skills immediately, instead of rote-learning for years beforehand. Software Engineering intrigued me because it seemed really fun, and the process of creating and problem-solving happens very quickly.

"A great example of this process was our Part IV project. We proposed a tool that allows students to ask in-class questions anonymously, which helped to solve an immediate problem that we felt existed in New Zealand lectures – the fact that students may be too nervous to ask questions.

"The best part about studying at the Faculty of Engineering has to be the relationships I've been able to build with my talented peers. I've been forming connections that will be helpful in my future professional life. I built an app with some of the people I met through my degree, which I hope to focus on as I embark on my professional life as a tech entrepreneur.

"I also enjoyed learning about software methods and development practices, but outside that, I got to take part in the student entrepreneurship scene through the Velocity Entrepreneurship Programme, and other clubs and events such as football, martial arts, and the Engineering Revue.

"Engineering has a fantastic culture and the great friendships I have made will be something I treasure."

Software Engineering

Software Engineering is behind many of the things we now take for granted – internet banking, online shopping, and mobile payments. It is the apps on your smart phone, the games on your computer, and the cloud storage you depend on to back up your devices. This area of engineering is being propelled by widespread demand for faultless software support. The creative possibilities literally stretch as far as your imagination!

Career opportunities

As infrastructure, government agencies, businesses, and individuals become increasingly reliant on intuitive, dependable, cloud-based solutions, software engineers are emerging as the newest generation of IT workforce leaders. As a graduate, you could end up in virtually any company, managing their information storage and sharing technologies. You might choose to join a dedicated software consultancy firm, or work your way up to management. Or, you might extend your Part IV project with postgraduate research, and use this to kick-start your very own start-up company.

How do you get in?

The following information details the requirements for admission to the BE(Hons).

University Entrance Standard

If you are applying for admission to the University of Auckland in 2019 based on secondary school qualifications, you will be required to meet the University Entrance Standard established by Universities New Zealand. For details please see *The University of Auckland Undergraduate Prospectus 2019* or visit **www.auckland.ac.nz/entry-requirements**

BE(Hons) programme requirements

As well as achieving University Entrance, you must also meet entry requirements for the BE(Hons) programme. The following table indicates the rank score, credit and subject requirements that will guarantee you a place in in 2019.

Guaranteed entry requirements for BE(Hons) programmes in 2019

Programme	NCEA (Level 3)	CIE	IB
Bachelor of Engineering (Honours) (BE(Hons))**	260 with 17 external Level 3 credits in Calculus and 16 external Level 3 credits in Physics	310 with Mathematics and Physics at A levels*	33 with Mathematics and Physics at HL level*
Bachelor of Engineering (Honours) conjoints	275 with 17 external Level 3 credits in Calculus and 16 external Level 3 credits in Physics	330 with Mathematics and Physics at A levels*	36 with Mathematics and Physics at HL level*

**For CIE students, AS Mathematics and Physics may be accepted based on level of grade achieved. For IB students, SL Mathematics and Physics may be accepted based on level of grade achieved.*

*** The Faculty of Engineering will give consideration to students who missed out on admission to BE(Hons) who are able to demonstrate sufficient ability in engineering-related and approved study, in the Bachelor of Science (BSc) programme for admission in Semester Two. For more information, see www.engineering.auckland.ac.nz/behon-alt-pathway*

How your rank score is calculated

National Certificate of Educational Achievement (NCEA) Level 3

Your rank score is based on your best 80 credits at Level 3 or higher over a maximum of five approved subjects. These credits are then weighted by awarding points based on the level of achievement – Excellence (4 points), Merit (3 points) or Achieved (2 points) – attained in each set of credits.

A maximum of 24 credits are counted for each approved subject. The maximum rank score is 320. If you achieve fewer than 80 credits, the rank score will be based on your total Level 3 credits gained over a maximum of five approved subjects and weighted by the level of achievement.

Credits obtained in required subjects do not have to be among the best 80 credits used to calculate the rank score.

NCEA Level 3 credits achieved before Year 13 can count towards the 80 best credits used for ranking.

University of Cambridge International Examinations (CIE)

Your rank score is based on the UCAS Tariff score for up to six subject units at AS level (one subject unit) or A level (two subject units). A maximum of two subject units can be included from any one syllabus group in the table of available syllabus groups, which are broadly equivalent to those in the list of approved subjects for NCEA. If you have studied more than six subject units, the best six scores will be used.

Thinking Skills and the General Paper will be excluded from the rank score calculation. The maximum rank score is 420. The following points are awarded for each syllabus group.

Level	A*	A	B	C	D	E
A	140 points	120 points	100 points	80 points	60 points	40 points
AS	-	60 points	50 points	40 points	30 points	20 points

International Baccalaureate (IB)

Your rank score is the same as your IB score. For example, if you achieve 27 points for IB, your rank score will be 27 points. The maximum rank score is 45.

Academic English Language Requirement (AELR)

The AELR aims to ensure that you have a sufficient level of competence in academic English to support your study at University. It will not affect whether you are offered a place on a programme, and may be met through your entry qualification or satisfactory completion of an approved course in your first year of study. For further information, see **www.auckland.ac.nz/aelr**

Prior tertiary study

To transfer from a New Zealand or overseas tertiary institution you must meet admission, programme, and undergraduate English language requirements. When you apply, you may also apply for credit for courses completed elsewhere.

For more information, see **www.auckland.ac.nz/priortertiarystudy**

Alternative pathways into Engineering

If you do not have the appropriate secondary school qualification, subjects and/or rank score, there are a number of alternative pathways for gaining admission into the BE(Hons).

For details, visit **www.engineering.auckland.ac.nz/entry-pathways**

Targeted Admission Schemes

The Faculty of Engineering is committed to equity within its programmes and offers admission schemes for eligible Māori and Pacific students, students with disabilities, students from refugee backgrounds, and students from low socio-economic backgrounds. The faculty reserves a number of places in our undergraduate programme for these students who have met the University Entrance Standard but have not met the guaranteed entry score for the BE(Hons). Places are limited, and applicants still must have studied Physics and Mathematics (including Calculus).

Māori and Pacific Targeted Entry Scheme (MAPTES)

The Faculty of Engineering invites applications from all eligible Māori and Pacific students. Places under MAPTES will be allocated based on academic performance. We recommend that you apply for MAPTES even if you don't think you will have the grades to get in. Gaining entry via MAPTES makes you eligible to participate in Tuākana, the academic and mentoring support programme offered within the Faculty of Engineering.

For further information, see **www.engineering.auckland.ac.nz/maptes**

It’s time to apply

It’s a two-step process to apply for and enrol in your chosen programme.

Apply

You can apply using our Application for Admission at **www.apply.auckland.ac.nz**

For a step-by-step guide for applications, admission and enrolment, see **www.apply.auckland.ac.nz**

To be considered under the Māori and Pasifika Targeted Entry Scheme (MAPTES), select the appropriate option.

Documents we require from you can be identified in your acknowledgement email or in the “Things you need to do” section of your Application for Admission.

If you applied for the next semester intake, admission decisions are made within four weeks from receipt of the required documents. Delays may occur for future semester intakes and during peak admission periods (September to January and May to July). Some documents may take longer to process than others.

When a decision is made, the status will show under the “Your applications” section of your Application for Admission.

**For some programmes, you may be required to submit supplementary information (eg, a portfolio of work, referee reports, an online form) or to attend an interview.*

***If you are not offered a place in the programme(s) of your choice, you will receive an email outlining alternative options. Your final offer of a place depends on two things: your admission to the University (which for school leavers may depend on your final school results) and your assessment by the relevant faculty.*

Enrol

Once you’ve accepted an offer of place in a programme, you can enrol in your courses. If you need some help with the enrolment process, take an online tutorial at **www.auckland.ac.nz/enrolment**

To find out more about the courses you’ll need to enrol in for your engineering degree, go to **www.engineering.auckland.ac.nz/enrolment**

Next, you need to make sure to pay your fees! You’ll find all the details at **www.auckland.ac.nz/fees**

If you feel stuck at any point in the process, you can find answers to your questions at **www.askauckland.ac.nz**

There’s also someone who can help during business hours at **0800 61 62 63** or email **studentinfo@auckland.ac.nz**

If you are starting tertiary study for the first time, you may be eligible for one year of fees-free study.

For more information, visit www.auckland.ac.nz/feesfreefirstyear.

Disclaimer: Although every reasonable effort is made to ensure accuracy, the information in this document is provided as a general guide only and is subject to alteration. All students enrolling at the University of Auckland must consult its official document, the current Calendar of the University of Auckland, to ensure that they are aware of and comply with all regulations, requirements and policies.
Publication date: March 2018.

Money matters

The table below is based on the fees schedule for a first-year BE(Hons) student enrolled in a full-time load of 120 points and should be used as a guide only. Domestic fees for 2019 will be set later in 2018.

For updated fees information, refer to **www.auckland.ac.nz/fees**

Domestic student (2018)	$6,930–$10,125
International student (2019)	$43,458

All fees are charged on a per point basis. Part-time students taking fewer than 120 points will pay proportionately lower fees. Workshop practice course fees are not included in the above. In addition to tuition fees, a Student Services Fee is also charged. Students studying full-time (120 points) in 2018 paid $813.60. The fee for 2019 will be set later in 2018.

Dates to remember

Events in 2018	
Enginuity Day	5 July 2018
Engineering Futures Evening – Auckland	1 and 8 August 2018
Engineering Futures Evening – Wellington	3 August 2018
Courses and Careers Open Day **www.openday.ac.nz**	25 August 2018

Closing dates for applications for admission in 2019	
MAPTES	24 November 2018
BE(Hons) Semester One entry	8 December 2018
BE(Hons) Semester Two entry	4 July 2019

Some late applications may be accepted after 2018 school results are received. It is advisable, however, to apply for all programmes that you might wish to study before the published closing date. Multiple applications are acceptable and all applications will be considered when 2018 academic results are available.

THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

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